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UDC 616.001.27-036.11-02:/617.55+617.582/-001.29

GEMRITSKIY, Ye. V., KOLESNIK, F. A., and VENTSEKOSTSEV, B. B., Chair of Military Field Therapy, Military Medical Academy imeni S. M. Kirov

"A Case of Acute Radiation Sickness in Man as a Result of External Gamma-Irradiation. I."

Moscow, Meditsinskaya Radiologiya, Vol 15, No 8, Aug 70, pp 48-54

Abstract: As a result of gross disregard of safety regulations, a healthy male subject 27 yrs of age was exposed to local irradiation with gamma-rays from a Co⁶⁰ source with an activity of 356 mc. The subject, who did not wear protective clothing, removed a Co⁶⁰ ampule from its container, placed it on top of a brick barrier, and lay down on top of the barrier, bringing the ampule into contact with the lower part of his abdomen. He then worked for 30 min in the same position, with the ampule remaining in contact with his body. As a result, he sustained a severe radiation lesion in the left iliac region, which comprised an external radiation burn of the abdomen and injury to the abdominal wall and underlying intestines. Three months after the accident, stenosis of the sigmoid developed, accompanied by intestinal obstruction due to fusion of the sigmoid to the abdominal wall. An operation was conducted in which an artificial outlet to serve as a substitute anus was created. No severe complications followed the

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...tsinskaya Radiologiya, Vol 15, No 8, Aug 70.
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sed to alleviate abdominal pains in the region of the burn. He was
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GEMBITSKIY, Ye. V., et al., Meditsinskaya Radiologiya, Vol 15, No 8, Aug 70.
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Powder Metallurgy

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USSR

UDC: 621.77.2

ZHIVOV, L. I., PAVLOV, V. A., SECHERBINA, V. V., KOLESNIK, F. I. and
MAKOGON, V. N., Zaporozh'ye Machine Building Institute

"Conditions for Hot Extrusion of Rods From Cermet Titanium"

Kiev, Poroshkovaya metallurgiya, No 11, Nov 71, pp 16-21

Abstract: Rods and shapes of intricate cross sections with a density close to monolithic metal may be produced from pre-compressed titanium powder briquettes with the use of appropriate equipment and the knowledge of the power energy parameters of hot extrusion (including force and work of deformation). Characteristic of hot forming of powdered metals and specifically of titanium powder is the fact that the density of the briquette in the first (nonstationary) phase of extrusion is lower than that of monolithic metal. In the second, quasi-stationary region, the densities of both the cake and the finished product are commensurate and approach that of monolithic metal. The stress-deformation relationship characteristic of a solid metal may be applied with reasonable accuracy to powdered materials. Considered here is the hot extrusion of pure titanium

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ZHIVOV, L. I., et al, Poroshkovaya metallurgiya, No 11, Nov 71, pp 16-21
powders and those alloyed with tungsten carbide (up to 30%). Use is made
of correction coefficients for crank press tests to correlate the data on
stresses and deformations by simple mathematical relationships. A nomograph
is proposed for rapid determination of both specific and over-all stresses
of extrusion of cermet materials. (5 illustrations, 1 table, 2 bibliographic
references).

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Ремонт Металлургии

UDC 621.752.569.18.95

USSR

PALATNIK, L. S., KAGAN, YA. I., SHILOV, I. P., BELYAEV, YU. I., BORDANOVA,
A. F., KOBYLEV, P. P., KOLESNIK, D. I., and KUDAKOV, D. D., Khark'ov Poly-
technic Institute imeni V. I. Lenin

and Macroheterogeneity of the SAS-1 Alloy"

Vol. 4, No. 73, pp. 22-26

UDC 622.253.35:699.1

"Investigation of the Impact Viscosity of Some Steels for highly Cold-Resistant Pipes"

Kiev, Problemy Prochnosti, No 10, 1970, pp 98-100

Abstract: It is proposed to use steels 20 and 35 in the state after hardening and high-temperature tempering for pipes of freezing columns functioning under complex operating conditions, when there are considerable static and dynamic loads at rather low operating temperatures (to -60°C). Tubes of these steel types have successfully passed stand and industrial tests in construction of the shafts of the Bereznikovskiy Potassium Combine. 4 figures, 1 table, 14 bibliographic entries.

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UTC 612.11/.12:621.3.029.6

USSR

KOLESNIK, F. A., Professor, Colonel of the Medical Service, KOMOGORTSEVA, N. A.

"Variation of the Number of General Sulfhydryl Groups in the Blood of People in Contact With Microwave Generators"

Moscow, Voenno-Meditsinskiy Zhurnal, No 3, 1973, pp 63-64

Abstract: A study was made of the sulfhydryl groups in the blood by the method of Kolthoff and Harris amperometric titration in the V. V. Sokolovskiy (1961) version. The basis for it was the principle of titrating the investigated hemolysate with a 0.001 M solution of silver nitrate. The silver ions formed during the chemical reaction are bound to the sulfhydryl groups as follows: $R-SH + Ag \rightarrow R-S-Ag + H^+$. The amount of silver expended on the titration is equivalent to the SH-group content. An experimental group (having contact with microwave generators) and a control group were examined. The ages of the examinees varied from 20 to 40 years, and the time spent working with the generators was from 1 to 10 years. Upon examination, an asthenic state with neurocirculatory dystonia of the hypotensive type, hyperension in the first stage with the asthenic state and other somatic diseases (gastritis, cholecystitis and polyarthrititis) were found in the experimental group.

People working with microwave generators were found to have a reduced content of total sulfhydryl groups. The drop takes place even after brief

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USSR

KOLESNIK, F. A. and KOMOGORTSEVA, N. A., Voenno-Meditsinskiy Zhurnal, No 3, 1973, pp 63-64

contact with the microwave sources. Cystamine increases the sulfhydryl content in both the control group and the group exposed to microwaves (from 870 before administration of the cystamine to 990 micromolecules for the control group and from 720 before administration to 909 micromolecules in the group exposed to microwaves). Vitamin C has no effect.

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GLORIA

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VOYENNO-MEDITSINSKIY ZHURNAL, NO. 4, 1970, PP. 95-96

SCIENTIFIC CONFERENCE ON CLINICAL TOXICOLOGICAL PROBLEMS

by

Doctor Med. Sci., Col. of Med. Serv.

~~F. A. Kolesnikov~~

~~Col. Med. Serv.~~

~~S. Yu. Nakhmanov~~

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In December 1969, a joint scientific conference was held by specialists of the military medical faculty at the S.M. Kirov Medical Institute in Leningrad and of the Gorky Scientific Research Institute of Work Hygiene and Professional Diseases. The conference was devoted to problems of clinical toxicology. The participants in the work of the conference included unit physicians and medical establishment doctors, representatives of the S.M. Kirov Military Medical Academy, of military medical faculties, scientific research institutions, chief specialists of military districts and fleets.

In the reports special attention was paid to diagnosis, clinical aspect and emergency aid in various poisonings (carbon monoxide, technical fluids, nitrogen oxides, barbiturates, distilled vinegar, chloroform and so on). Prof. S.I. Acheul remarked that in connection with the wide use of various technical fluids and toxic chemicals in industry and agriculture the cases of serious poisonings increased in frequency. Unskilled use of medicinal preparations, especially of vitamin B₁ and of nicotinic acid, also results in serious complications. Prof. G.I. Durovsky, Deputy Deputy, Colonel of Medical Service, and others talked about observations of patients subjected to intoxication with substances of irritating effect.

N.A. Rudakov, Colonel of Medical Service, talking of chronic poisoning with gases of nitric acid and nitrogen oxides, called attention to the combination of general disturbances (disorders of the central nervous and cardiovascular systems, injury of the liver and so on) with local lesions (necrosis of the upper respiratory pathways, destruction of teeth). The communication of V.I. Birn, Colonel of Medical Service, and of V.F. Yermakov, Chief of Medical Service was devoted to the treatment of acute CO poisoning. In these cases the authors recommend the more active use of exchange blood transfusions, and the administration of large amounts of magnesium sulfate (60-70 ml during 6 hours) as well as barbiturate, and S.A. Gulya, candidate of Medical Science and others talked about the clinical aspects and treatment of poisoning with technical fluids.

The reports of L.N. Chernov and I.I. Pasterman, M.S. Gulyaev, V.F. Durovsky, candidates of Medical Science and of others presented data on poisonings with some industrial and domestic poisons (acetylthiuride, ethyl chloroform, distilled vinegar, and so on). In their reports the authors remarked about the need to strengthen preventive work, stricter control of carrying the rules of technical safety at factories, closer control of bottles containing toxic substances, wide spreading of antipoisoning work, and so on.

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Great interest was produced by the communication of a group of researchers under the leadership of K.Y. Lisitsin, Colonel of Medical Service, on searching for and elaborating methods of hemodialysis in acute renal failure. They suggest temporary extracorporeal attachment of a endovascular hemodialyzer to the organism of the recipient. I.T. Popov, Lieutenant Colonel of Medical Service, and collaborators told of their experience of resuscitation in poisonings complicated with acute renal failure (transfusion therapy, hemodialysis, peritoneal dialysis and exchange blood transfusion should be more widely used).

V.N. Petrov, leader of the Department of artificial kidney of the Gorkiy Central Clinical Hospital, remarked that methods of hemodialysis are generally effective in the next hours after poisonings. He recommended that in the complex of resuscitation measures peritoneal dialysis and exchange blood transfusion should be more widely used.

Talking of acute lesions by electromagnetic waves of ultrahigh frequencies of great power, E.A. Kolesnik finds appropriate to introduce the term "acute radio wave sickness". He considers it necessary to deploy more widely the investigation for the study of acute lesions by EMP fields, to improve the organization of emergency aid in such cases. In the report on toxicological reactions of medicinal origin, the possibility of the development of an anaphylactic shock was noticed after the development of administration of ADP (S.Ye. Nakhmanov).

A.E. Ivanov, Colonel of Medical Service, taking part in the discussion, mentioned the considerable current interest which problems of acute and chronic intoxications have for military surgeons, and he also pointed to the need of a more distinct organization of emergency aid in hospitals in group poisonings. The prevention of poisonings should be also more effective.

G.I. Dorofeyev, Colonel of Medical Service, called the attention of the participants in the conference to the importance of searching for methods of rapid diagnosis of acute poisonings.

Participants of the Conference got acquainted with the clinics and laboratories of the Military Medical Faculty and of the Scientific Research Institute of Work Hygiene and Professional Diseases.

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Powder Metallurgy

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UDC: 621.77.2

ZHIVOV, L. I., PAVLOV, V. A., SHCHERBINA, V. V. , KOLESHNIK, F. I. and
MAKOGON, V. N., Zaporozh'ye Machine Building Institute

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USSR

UDC 624.07:534.1

KOLESNIK, I. A.

"Dynamic Effect in the Stopping of a Load or Group of Loads in the Transit of a Combined System"

Soprotiv. materialov i teoriya sooruzh. Resp. mezhved. nauch.-tekhn. sb. (Resistance of Materials and the Theory of Structures. Republic Interdepartmental Scientific-Technical Collection), 1972, No. 18, pp 78-82 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V258)

Translation: Transverse oscillations of combined systems consisting of rigidity beams with a flexible arc (braced and unbraced) under uniformly slowing motion with a stop in the middle of the transit of the load or group of loads are discussed. It is shown that the dynamic coefficients under uniformly slowing motion of loads with a stop in the middle of transit are increased with an increase in the number of loads which passed along the beam. Author's abstract.

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1/2 017 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--SHRINKAGE DEFECTS IN FOUNDRY IRON INGOT MOLD CASTINGS -U-
AUTHOR-(02)-CHERKASOV, L.M., KOLESNIK, L.A.
COUNTRY OF INFO--USSR
SOURCE--LITEINOE PROIZVOD. 1970, (3), 31-2
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS
TOPIC TAGS--METAL CASTING, METAL SHRINKAGE, CAST IRON, MAGNESIUM
CONTAINING ALLOY, INOCULATION

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3005/0140 STEP NO--UR/0128/70/000/003/0032/0032
CIRC ACCESSION NO--AP0132432
UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0132432

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF HYPEREUTECTOIDAL GRAPHITE ON THE SHRINKAGE CAVITIES DEVELOPMENT WAS STUDIED ON THE FOLLOWING 5 IRONS: BLAST FURNACE PIG, BLAST FURNACE CAST IRON, BLAST FURNACE MIXED IRON, BLAST FURNACE CAST IRON INOCULATED WITH MG, CUPOLA IRON (C 4.25, 4.10, 4.18, 3.60-3.75, 3.48; SI, 0.75, 2.00, 1.42, 2.13-2.26, 1.9; MN 1.24, 0.75, 0.92, 0.72-0.80, 0.70; S 0.050, 0.041, 0.038, 0.006-0.010, 0.09; AND P 0.071, 0.100, 0.092, 0.096-0.103, 0.20 WT. PERCENT.). TWO KINDS OF SAMPLES WERE TAKEN DIRECTLY FROM THE LADLE: (1) A CONVENTIONAL ROD SAMPLE, AND (2) INTO A METALLIC VESSEL LINED INSIDE WITH A THIN LAYER OF A SAND CLAY RAMMING MIX. (2) HAD SMALL SHRINKAGE CAVITIES BUT THE DIMENSIONS OF THE CASTING WERE DIMINISHED. (1) DEVELOPED CONCD. SHRINKAGE CAVITIES, TO SEVERAL TIMES LARGER EXTENT THAN IN (2). IN (2) THE LEAST VOL. OF SHRINKAGE DEFECTS WERE FOUND IN THE BLAST FURNACE CAST IRON FOR REMELTING, AND THE LARGEST VOL. IN THE BLAST FURNACE CAST IRON FOR FOUNDRY USE. IN (1) THE REVERSE WAS TRUE. THE VOL. OF SHRINKAGE CAVITIES IS REDUCED ONLY BY THE FORMATION OF HYPEREUTECTOIDAL GRAPHITE, WHICH CRYSTALLIZES IN THE MOLDS BELOW THE TEMP. OF CASTING. THE GRAPHITE, FORMED AS A REFINING FOAM AT HIGHER TEMPS., INCREASED THE PSEUDOPOROSITY, BECAUSE OF THE LARGER SP. VOL. OF THE FOAM. SHRINKAGE CAVITIES WERE FORMED IN BLAST FURNACE CAST IRON ONLY WHEN THE CASTING TEMP. IS TOO HIGH OR IF THE CORE OF THE MOLD YIELDED TOO MUCH. MOLDS MADE FROM CUPOLA CAST IRON OFTEN SHOW SHRINKAGE CAVITIES AT THE BOTTOM WHICH CAN BE DECREASED EITHER BY INCREASING C CONTENT IN CAST IRON OR BY REDUCING THE CASTING TEMP.

UNCLASSIFIED

UDC: 621.315.592

USSR

GLORIOZOVA, R. I., GRACHEV, V. M., and KOLESNIK, L. I., State Scientific-Research and Design Institute for Rare Metal Industries, Moscow

"Electrical Characteristics of n-Type GaP Grown from Melts Containing Oxygen"

Leningrad, Fizika i tekhnika poluprovodnikov, No 8, 1972, pp 1623-1625

Abstract: Results are given of experiments performed on n-type GaP grown from melts of nonstoichiometric alloys containing oxygen. A number of phenomena accompanying the alloying of GaP by oxygen that are not directly connected with oxygen donor action were detected during the experimentation. The specimens were GaP crystals doped with tellurium, or oxygen, or both combined. The oxygen doping was done by adding Ga_2O_3 in quantities of 0 to $2.5 \cdot 10^{-1}$ molecular % to the melt. A table is given of the electrical parameters of the investigated crystals. It was found that in the specimens grown from melts containing both tellurium and oxygen, there was a substantial increase in Te ionization energy which is probably

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GLORIOZOVA, R. I., et al, Fizika i tekhnika poluprovodnikov, No 8, 1972, pp 1623-1625

connected with a reduction in the degree of compensation of the crystals. Curves are plotted for Te ionization energy as a function of donor concentration, and for the degree of compensation in n-type GaP crystals, the low end of the band spectral radiation from n-p junctions, and the photoluminescence intensity as functions of the Ga_2O_3 content in the melts. The authors express their gratitude to M. G. Mil'vidskiy for his comments.

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USSR

UDC: 661.143

MIKHALEV, A. A., MIRONENKO, V. M., MOROZOV, O. A., KOLESNIK, R. I.,
TETERYUKOVA, V. G., GUGEL', B. M.

"A Procedure for Predicting the Uniformity of the Luminescence
Color of a BM-5 Phosphor Coating"

Sb. nauch. tr. VNII lyuminoforov i osobo chist. veshchestv (Col-
lected Scientific Works of the All-Union Scientific Research
Institute of Phosphors and Extra Pure Materials), 1971, vyp. 5,
pp 125-132 (from RZh-Khimiya, No 7, Apr 72, Abstract No 7L178)

Translation: It was established by physical and chemical methods that in
applying batches of grade BM-5 luminescent compositions made by chemical
plants, the large fraction settling on the screen frequently contains an
excess of the composition with yellow luminescence color. For such batches of
BM-5, the luminescence color of the screen is typically nonuniform with a whit-
ish spot in the center. A method is proposed for evaluating the quality of
BM-5 luminescent composition with respect to the uniformity of the luminescence
color on the screen prepared from the BM-5. The procedure is based on separa-
tion into component parts followed by analysis of the granular composition
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MIKHALEV, A. A., et al, Sb. nauch. tr. VNIi luminoforov i osobo chist. veshchestv, 1971, vyp 5, pp 125-132

of the components. A coefficient of uniformity is derived which is equal to half the sum of the ratios of the weights of the $B-3^N$ and $B-3^D$ fractions of the composition, which contain particles from 16 to 20 microns, and greater than 20 microns, and the limiting value of the coefficient is established (2 or less). Determination of the coefficient is based on analysis of the behavior of more than 20 batches of BM-5 luminescent composition. Bibliography of 5 titles. Résumé.

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UDC 8.74

USSR

KOLESNIK, V. A.

"An Algorithm for Compiling Systems of Algebraic Equations on a Digital Computer"

V sb. Metody elektr. modelir. v teorii uprugosti i stroitel'n. mekh. (Methods of Electronic Simulation in Elasticity Theory and Structural Mechanics--collection of works), Rostov-na-Donu, 1972, pp 93-96 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V498)

Translation: As a rule, the numerical methods of solving partial differential equations place one or several equations at the disposal of the person performing the calculations which must be written for each node of the grid applied to the integration region. A simple algorithm is proposed for compiling such equations on a computer based on the following theorem:

If the elements of the vector \bar{A} having the dimensions m are only zeroes and elements (or the sum of them) from the vector \bar{C} the dimension of which is n , then

$$\bar{A} = \Pi \times \bar{C}, \quad (1)$$

where Π is the transformation matrix of dimension $(m \times n)$ containing only zeroes and ones as the elements.

Let the initial operator of any numerical method be represented by the equation

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KOLESNIK, V. A., Metody elektr. modelir. v teorii uprugosti i stroitel'n. mekhn., Rostov-na-Donu, 1972, pp 93-96

$$\bar{B} \times \bar{\Phi} = \bar{T} \quad (2)$$

where \bar{B} is the coefficient matrix, $\bar{\Phi} = [\phi_1, \phi_2, \dots, \phi_i]$, $i = 1, 2, \dots, n$; n is the number of discrete parameters of the desired function ϕ at the nodes of the grid — operators.

On the basis of the presented theorem, instead of writing equation (2) for each communications point, it is required only to compile the transformation matrices Π ; here, for the conversion matrices it is sufficient to write only the coordinates of single elements, leaving the rest to the machine. The transformation matrices remain the same as in the case of variation of the coefficients in the matrix \bar{B} .

A quite simple and convenient technique is proposed for writing the coordinates using the grid applied to tracing paper with numbering of all its nodes facilitating preparation of the data for the computer.

A calculation of an orthotropic plate is presented as an example.

USSR

KOLESNIK, V. D., MIRONCHIKOV, Ye. T.

"Distribution of Probabilities in Finite Abelian Groups and Analysis of Decoding Algorithms"

Informatsionnye Materialy. Nauch. Sovet po Kompleks. Probl. "Kibernetika" AN SSSR [Information Materials, Scientific Council on the Complex Problem of "Cybernetics," Academy of Sciences USSR], No 3(50), 1971, pp 166-186, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V359 by E. Gabidulin).

Translation: Real functions defined in elements of a finite Abelian group and their Fourier transforms are studied. In particular, the distributions of probability are fixed in the group and the problem of decoding error is studied. Characteristic functions (Fourier transforms of the probability distribution) are used to describe a broad class of channels including a channel without memory, and the upper boundary is produced for the probability of false decoding. Let us present a characteristic partial result: for a binary symmetrical channel, the probability of error has the estimate

$$P_{er} < \sum_{w=1}^N N(w) (2\sqrt{p_0 q_0})^w, \text{ where } p_0 \text{ is the probability of error in a symbol, } N(w)$$

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USSR

KOLESNIK, V. D., MIRONCHIKOV, Ye. T., Informatsionnye Materialy. Nauch. Sovet po Kompleks. Probl. "Kibernetika" AN SSSR, No 3(50), 1971, pp 166-186.

is the spectrum of the code. It is pointed out that the method of operations can be used for the solution of other similar problems.

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Foundry

USSR

UDC 669.185.1

MIKIFOROV, B. V., SMOKTII, V. V., GUL'YEV, G. P., ORIOV, V. S.,
SIZENKO, A. S., SAFRONOV, YU. YA., KOLESNIK, V. D., BASHINAKOV,
YU. V., RUDNITSKIY, YA. N., FAYERSHTEYN, A. D., KAGAN, I. I.,
Institute of Ferrous Metallurgy in Dnepropetrovsk and Krivoy
Rog Metallurgical Plant

"Operating Experience With a 55-Ton Converter With Increased
Blowing Rate"

Moscow, Stal', No 3, Mar 70, pp 215-218

Abstract: Metallurgists of the Institute of Ferrous Metallurgy
in Dnepropetrovsk and Krivoy Rog Metallurgical Plant have
developed a technique for smelting in 55-ton converters with
the oxygen feed rate almost doubled from 2.8-3 to 5-6 cu m/t
per minute. A new-type tuyere is used, the nose of which has
two rows of concentrically arranged nozzles with independent
oxygen feed to each row. The increased blowing rate improves
slag formation. The yield of acceptable product and the degree
of improvement in slag formation are determined by the struc-
tural characteristics of the noses. Nose No. 5 was found to be
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USSR

NIKIFOROV, B. V., et al., Stal', No 3, Mar 70, pp 215-218

the most effective of all those tested. The use of a tuyere with nose No. 5 reduces the blowing time by 40 percent and increases converter productivity by 20.5 percent. Steels K St. 5sp, K St. 3sp, 35GS, K St. 5 ps, K St. 3ps, K St. 0m, 03kp, 10kp, K2, K3, KExp., K3lhr, T, and Sv-08A were obtained without any decrease in the yield of acceptable product, deterioration of metal quality, or decrease in refractory lining resistance. In newly designed shops provision should be made for a gas circuit capacity and oxygen feed system sufficient for the operation of converters with a blowing rate of 5-6 cu m/(t. min).

2/2

USSR

UDC: 51:621:391

KOLESNIK, V. D., MIRONCHIKOV, Ye. T.

"The Number of Information Symbols in Polynomial Codes"

Tr. Leningr. In-t Aviats. Priborostr. [Leningrad Institute of Aviation Instrument Building], 1972, No 74, pp 60-70 (Translated from Referativnyy Zhurnal Kibernetika, No 11, 1972, Abstract No 11V371, by V. Zinov'yev)

Translation: The polynomial codes introduced by Kasami, Lin and Peterson have been studied by many authors. This class of codes is interesting in that it includes many known classes of codes such as R-M codes, BFC codes, dual geometric codes, etc. The purpose of the present article is to describe a simple method of determination of the number of information symbols in polynomial and other related codes. In certain particular cases, this method leads to simple recurrent or explicit formulas which are either known or generalizations of known formulas, or are new. For example, a formula is produced for the number of information symbols in the case of Euclidean geometric codes.

1/1

USSR

UDC 621.791.79.052.011:669.15-194:621.3.032.1

SEMENOV, V. M., and KOLESNIK, V. P. (New Kramatorsk Machinery Plant imeni V. I. Lenin), Engineers, and POKATAYEV, S. V. (Central Scientific Research Institute for Heavy Machine Building), Candidate of Technical Sciences

"Properties of Welded Joints Made of Type 25GS Vacuum Steel by Electric Slag Method"

Moscow, Svarochnoye Proizvodstvo, No 2, Feb 71, pp 35-37

Abstract: Studies of the influence of vacuum processing of steel on the properties of welded joints produced by the electric slag method were performed in order to select a welding wire to allow production of seam metal with mechanical properties (after tempering) equal to the properties of the base metal. The influence of temperature, holding time, and cooling rate of tempering on the properties of the base metal and near-seam zone was studied. It was found that casting 25GS steel in a vacuum significantly improves the impact toughness of the base metal and the near-seam zone of welded joints without subsequent heat treatment. Heat treatment does not change the mechanical properties of 25GS steel preliminarily subjected to isothermal annealing. Earlier ideas concerning the technology of production and limitations of carbon content in 25GS steel were confirmed.

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1/2 014 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--A METHOD OF SYNTHESIZING A CLASS OF DIGITAL CONTROL SYSTEMS -U-
AUTHOR--(02)--SOLODOVNIKOV, V.V., KOLESNIK, V.P. K
COUNTRY OF INFO--USSR
SOURCE--IZV. VUZ. PRIBOROSTROENIE, VOL. 13, NO. 1, 1970, P. 39-44
DATE PUBLISHED-----70
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.
TOPIC TAGS--DIGITAL SYSTEM, PROGRAMMED AUTOMATIC CONTROL, COMPUTER LOGIC
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1986/0371 STEP NO--UR/0146/70/013/001/0039/0044
CIRC ACCESSION NO--AP0102383
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0102383

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF A CONTROL PROGRAM STRUCTURE WHICH REALIZES A TIME OPTIMAL SECOND ORDER CONTROL WITH A PURE DELAY AND ENSURES THE ABSENCE OF AUTO OSCILLATIONS UNDER STEADY STATE CONDITIONS. A METHOD OF SYNTHESIZING THE CONTROL PROGRAM PARAMETERS IS PROPOSED, WHICH TAKES INTO ACCOUNT THE LEVEL QUANTIZATION SPACINGS AND THE LOGIC CONDITIONS IN ACCORDANCE WITH WHICH CHANGES IN THE PROGRAM STRUCTURE ARE MADE.

UNCLASSIFIED

USSR

IVANENKO, V. I., KOLESNIK, V. V., KORABTSOV, A. A.

"An Enterprise with Continuous Technology as an Object of Control"

Upravlyayushchiye Sistemy i Mashiny [Control Systems and Machines], 1972, No 1, pp 41-49 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V674, by the authors).

Translation: The problem of construction of an automated control system for an enterprise with continuous technology is studied from the standpoint of the priority of the main production process. Using decomposition resulting from the structure of the basic production complex, the authors establish the interrelationship between models, criteria and tasks performed at each level in the hierarchy of the ACS.

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USSR

IVANENKO, V. I., KOLESNIK, V. V., SHOR, Ye. I.

"Certain Methods of Determination of the Optimal Control for Probabilistic Dynamic Objects"

Upravlyayemye Sluchayn. Protsessy i Sistemy [Controlled Random Processes and Systems -- Collection of Works], Kiev, 1973, pp 24-53 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V216, by R. Liptser).

Translation: Suppose z_k , $k = 1, \dots, m$ is a sequence of random quantities, u_k , $k = 1, \dots, \ell$ is a sequence of control actions generated by z_k , $k \geq 1$. Control z_k , $k \geq 1$, should be selected so as to minimize $M \sum_{k=1}^N w(x_k, u_k)$, where $x_k = G(u_1, \dots, u_\ell, z_1, \dots, z_m)$, while w and $G(\cdot, \dots, \cdot)$ are certain measurable functions.

In order to seek out the optimal control in this problem, one must solve the equation of Bellman. Since determination of the solution of Bellman's equation is difficult, conditions are formulated under which the optimal control in the k th step can be found by minimizing the conditional mathematical

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USSR

Ivanenko, V. I., Kolesnik, V. V., Shor, Ye. I., Upravlyayemye Sluchayn. Protsessy i Sistemy, Kiev, 1973, pp 24-53.

expectation $M[w(x_k, u_k)S_{k-1}, z_k, u_k]$ in the k th step, where S_{k-1} is a sigma algebra generated by the quantities $(z_1, \dots, z_{k-1}, u_1, \dots, u_{k-1})$. Certain other approaches simplifying the solution of Bellman's equation for this control problem are also studied.

USSR

UDC: 669.715:539.4

KOLESNIK, V. V., BUGAY, V. I., Kiev

"Study of Cyclical Strength of D1T Alloy Considering Scattering of Results"

Kiev, Problemy Prochnosti, No 11, Nov 1972, pp 91-92.

Abstract: Results are presented from studies of the cyclical strength of D1T alloy over 10^8 loading cycles. Full probability diagrams of cyclical strength and endurance curves are constructed with various probabilities of rupture for smooth specimens and specimens with stress concentrators. It is established that D1T alloy, with its high sensitivity to stress concentrators, has no physical endurance limit in the range up to 10^8 loading cycles; numerical values of the endurance limits are presented.

1/1

USSR

KOLESNIK, Ye. S., MAKAROVA, S. B., PAKHOMOVA, E. M., YEGOROV, Ye. V.

"Anomalies in Sorption in Phosphoric Acid Ionites"

Anomalii pri Sorbtsii na Fosfornokislykh Ionitakh [English Version Above], Moscow, 1971, 13 pages (Translated from Referativnyy Zhurnal, Khimiya, No 2, 1972, Abstract No 2 B1415 Dep. by the author's).

T. elation: It is demonstrated that ordinary styrene bdivinylbenzene phosphoric resins (I) have low Th capacity; their ion-exchange equilibrium is established very slowly; the Th diffusion factor in I is very low, 10^{-11} cm²/sec. The Th distribution factor increases with increasing concentration of nitric acid and dispersion of I. After contact with Th solutions, I reduces its capacity for many multiply charged ions. As swelling ability increases, the rate of Th exchange and capacity of I for this ion increase sharply. Assumptions are made explaining the anomalous behavior of I for Th.

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1/2 023 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--EXTRACTION OF SOME ACIDS BY TRI,N,OCTYLAMINE -U-
AUTHOR--(04)--NIKOLAYEV, A.V., KOLESNIKOV, A.A., GRISHIN, G.M., GRANKINA,
Z.A.
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(5), 1074-6 CHEM
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--AMINE, ACID, POTENTIOMETRIC TITRATION, IR SPECTRUM, CHEMICAL
ANALYSIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3006/1111 STEP NO--UR/0020/70/191/005/1074/1076
CIRC ACCESSION NO--AT0134797
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0134797

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SYSTEMS TRI,N.OCTYLAMINE, H
SUB2 O, ACID WERE STUDIED BY USING THE ACIDS HCL, H SUB3 PO SUB4, HNO
SUB3, AND H SUB2 SO SUB4. POTENTIOMETRIC TITRIN. AND IR METHODS WERE
USED TO ANALYZE THE PHASES. IN THIS SYSTEM THERE IS A LARGE REGION IN
WHICH 3 LIQ. PHASES COEXIST: AN AQ. AND 2 ORG. PHASES. ONE ORG. PHASE
CORRESPONDS TO THE HYDRATED SALT OF TRIOCTYLAMINE AND THE CORRESPONDING
ACID AND THE OTHER PHASE TO THE PURE AMINE. THE IR DATA ESTABLISHED THE
INTER PRESENCE OF INTERACTION BETWEEN THE SALT AND WATER USING THE HCL
SALT AS EXAMPLE. FACILITY: INST. NEORG. KHIM., NOVOSIBIRSK,
USSR.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--A STUDY ON NUCLEAR MATERIAL FROM THE CELLS OF AZOTOBACTER
VINELANDII -U-
AUTHOR-(03)-SHANINA, N.A., KOLESNIKOV, A.A., GNZAYSEVA, G.N.
COUNTRY OF INFO--USSR
SOURCE--MIKROBIOLOGIYA, 1970, VOL 39, NR 1, PP 60-66
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--RNA, DNA, PROTEIN, LIPID, RIBOSOME, FUNGUS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1990/1411 STEP NO--UR/0220/70/039/001/0060/0066
CIRC ACCESSION NO--AP0109473
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--13NOV70

2/2 010

CIRC ACCESSION NO--AP0109473

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NUCLEAR SUBSTANCE WAS ISOLATED FROM THE CELLS OF A. VINELANDII BY FRACTIONATION AND SOME BIOCHEMICAL PROPERTIES OF ITS COMPONENTS WERE STUDIED. AFTER REMOVAL OF FREE RIBOSOMES NUCLEAR MATERIAL CONTAINED RNA AND DNA (2.2 IS TO 1). FURTHER REMOVAL OF BOUND RIBOSOMES FROM NUCLEAR MATERIAL BY ISOOCTANE RESULTED IN A DECREASE OF THE RNA IS TO DNA RATIO (0.8 IS TO 1). THE CONTENT OF LIPIDS AND PROTEIN WAS HIGH IN NUCLEAR MATERIAL OF A. VINELANDII. A STUDY OF NUCLEAR MATERIAL BY A TECHNIQUE OF DENSITY GRADIENT EQUILIBRIUM SEDIMENTATION ESTABLISHED IN A SUCROSE SOLUTION REVEALED FOLLOWING COMPONENTS: DNA, RNA, 74S NUCLEAR RIBOSOMES AND THEIR SUBUNITS AS WELL AS A COMPLEX, CONTAINING DNA, RNA, PROTEIN AND, PROBABLY, LIPIDS. NUCLEOTIDE COMPOSITION OF THE RNA FRACTION WAS STUDIED AFTER COMPLETE REMOVAL OF RIBOSOMES (BOTH FREE AND BOUND) FROM NUCLEAR MATERIAL. NUCLEOTIDE COMPOSITION OF THIS RNA FRACTION CONSIDERABLY DIFFERED FROM THAT OF DNA, RIBOSOMAL RNA AND TRANSFER RNA OF THE CULTURE.

UNCLASSIFIED

USSR

KOLESNIKOV, A. G., DVORYANINOV, G. S.

"Development of a Stationary Bottom Boundary Layer Resulting from Reynolds Wave Stresses"

Mor. Gidrofiz. Issled. No 1(51), [Marine Hydrophysical Studies, No 1(51)], Sevastopol', 1971, pp 25-31. (Translated from Referativnyy Zhurnal Mekhanika, No 1, 1972, Abstract No. 1B531, by V. M. Kamenkovich).

Translation: The nonlinear problem of movement in a boundary layer under the influence of periodic perturbations of the free flow is studied. The field of velocities is represented as the sum of the stable and periodic components; individual differential equations are concluded for each component. Expansion into series with respect to the inverse value of the Strukhal number allows these equations to be solved in sequence. The Reynolds wave stresses and induced or stable solution are calculated (in the first approximation). The authors believed that the peculiarities of bottom and sludge currents in the ocean can be explained in this manner.

1/1

1/3 .018 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--INTERACTION BETWEEN THE OCEAN AND ATMOSPHERE, FRENCH SOVIET STUDY
OF ATMOSPHERE OCEAN INTERACTION -U-
AUTHOR--KULESNIKOV, A.G.
COUNTRY OF INFO--FRANCE, USSR, MEDITERRANEAN SEA
SOURCE--KIEV, VISNIK AKADEMII NAUK UKRAINS'KOI RSR, NO 5, 1970, PP 95-101
DATE PUBLISHED-----70
SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, ATMOSPHERIC SCIENCES
TOPIC TAGS--AIR SEA INTERFACE, WIND VELOCITY, OCEANOGRAPHIC BUOY, OCEAN
SURFACE TEMPERATURE, SALINITY, TURBULENCE METER, CURRENT
RECORDER/(U)MIKHAIL LOMONOSOV SHIP, (U)GAT6 TURBULENCE METER, (U)BPV2
CURRENT RECORDER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605041/E11 STEP NO--UR/0655/70/000/005/0095/0101
CIRC ACCESSION NO--AP0142756
UNCLASSIFIED

2/3 018

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0142756

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FRENCH SCIENTISTS INVITED SPECIALISTS OF THE MARINE HYDROPHYSICAL INSTITUTE ACADEMY OF SCIENCES UKRSSR AND THE INSTITUTE OF ATMOSPHERIC PHYSICS ACADEMY OF SCIENCES USSR TO PARTICIPATE IN JOINT STUDIES ON THE THEME "INTERACTION BETWEEN THE OCEAN AND THE ATMOSPHERE" SINCE THE MARINE HYDROPHYSICAL INSTITUTE HAS APPARATUS FOR DIRECT MEASUREMENTS OF THE FLUX OF HEAT AND MOMENTUM AND FOR DETERMINING THE ENERGY FLUX IMPARTED BY THE WIND TO THE SEA SURFACE AND THE INSTITUTE OF PHYSICS OF THE ATMOSPHERE HAS INSTRUMENTATION FOR DIRECT MEASUREMENTS OF THE HEAT AND MOMENTUM FLUXES IN THE NEAR WATER LAYER OF THE ATMOSPHERE. INVESTIGATIONS WERE BASED ON THE FRENCH BUOY LABGRATORY, ANCHORED IN THE WESTERN MEDITERRANEAN. SOVIET SPECIALISTS WORKED ABOARD THE RESEARCH VESSEL "M. LOMONOSOV", THE LATTER MADE OBSERVATIONS IN A POLYGON SURROUNDING THE BUOY STATION; 29 STATIONS WERE OCCUPIED, EACH 30 MILES APART. THE "LOMONOSOV" CARRIED 63 SCIENTIFIC SPECIALISTS. PRIOR TO DEPARTURE FROM MARSEILLES AN "OPEN HOUSE" WAS HELD ABOARD THE SHIP. NINE FRENCH SPECIALISTS WORKED ABOARD THE SOVIET VESSEL AND 10 RUSSIAN SPECIALISTS WORKED ABOARD THE BUOY STATION. FOUR SELF CONTAINED BUOY STATIONS WERE SET OUT FOR MEASURING CURRENTS AT 16 HORIZONS AT DEPTHS FROM 15 TO 1,500 M. THE ARTICLE BRIEFLY SUMMARIZED THE RESULTS OF THESE STUDIES.

UNCLASSIFIED

3/3 018

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0142756

ABSTRACT/EXTRACT--THE FOLLOWING ARE DESCRIBED: FLOATING GRADIENT SYSTEM WITH TRACKING SYSTEM FOR MEASURING THE STRUCTURE OF THE FIELD OF WIND VELOCITY DIRECTLY OVER THE SEA SURFACE AND AT SEVERAL HORIZONS ABOVE THE SURFACE; CAT-6 SELF CONTAINED TURBULENCE METER FOR MEASURING FLUCTUATIONS OF THREE COMPONENTS OF CURRENT VELOCITY AND TEMPERATURE AT SEA TO A DEPTH OF 80 M; BPV-2 AUTOMATIC CURRENT RECORDERS FOR REGISTRY OF CURRENT VELOCITIES TO DEPTHS OF 1,500 M. IN THIS REGION THE HYDROLOGICAL STRUCTURE WAS AS FOLLOWS: THE SURFACE LAYER HAD A HIGH TEMPERATURE AND LOW SALINITY. A TEMPERATURE MINIMUM IS OBSERVED AT A DEPTH OF 100-180 M. AN INTERMEDIATE TEMPERATURE MAXIMUM IS OBSERVED AT DEPTHS OF 350-450 M. THIS IS ACCOMPANIED BY AN INTERMEDIATE SALINITY MAXIMUM ASSOCIATED WITH A TIDAL WAVE. FARTHER TOWARD THE BOTTOM SALINITY GRADUALLY DECREASES, IN THE BOTTOM HORIZONS ATTAINING 38-41 PERCENT. AT THE HORIZONS 1,200-1,500 M THERE IS A DEEP TEMPERATURE MINIMUM OF 12.91-12.95DEGREESC. ALL ASSIGNED MISSIONS WERE COMPLETED. DURING THE FIRST HALF OF 1970 A JOINT FRENCH SOVIET SYMPOSIUM WILL BE HELD FOR DISCUSSING AND ANALYZING THE RESULTS.

UNCLASSIFIED

USSR

UDC: 778.4

KOTOSONOV, N. V., KHLIYAVICH, Ya. L., KOLESNIKOV, A. I., BAZARSKIY, O. V., DUSHKIN, I. R., and VISLYANSKIY, A. G.

"Recording and Restoring Microwave Holograms With Gradations of the Interference Picture"

Moscow, Radiotekhnika i elektronika, No 8, 1972, pp 1731-1732

Abstract: The purpose of this brief communication is to compare the quality of images restored from binary and multigradation radioholograms in the optical range. A block diagram of the hologram recording equipment used for the experiments described in this paper is shown, and a description of its operation given. The radiation source used was a type OV-22 backward wave tube, with a frequency of 125 GHz. The method of processing the obtained recordings is described. For restoration, the hologram was photographically reduced and was then restored in the diverging beam of a helium-neon laser type LG-36A. Photographs of the object, its image restored by multigradation hologramming, and the image restored by binary hologramming, are reproduced for comparison. The experiment showed that while the resolving capability of binary and multigradation holography are the same,

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USSR

UDC: 778.4

KOTOSCNOV, N. V., et al, Radiotekhnika i elektronika, No 8, 1972,
pp 1731-1732

the quality of the restored image is better with the latter
method.

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1/2 034 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--RADIOECOLOGICAL STUDIES IN THE MURUROA ATOLL (TAUMOTU IS.) REGION
-U-
AUTHOR-(03)-KOLESNIKOV, A.N., BARINOV, G.V., ZESENKO, A.Y.
COUNTRY OF INFO--USSR
SOURCE--(AEC-TR-7128, PP 62-5), TRANSLATED FROM REPORT A-AC-82-G-L-1254
DATE PUBLISHED-----70
SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--OCEAN RADIOACTIVITY, PLANKTON, NUCLEAR WEAPON TEST, FISSION PRODUCT, RADIOACTIVITY MEASUREMENT, RADIATION BIOLOGIC EFFECT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1985/1830 STEP NO--UR/0000/70/000/000/0062/0065
CIRC ACCESSION NO--AT0101877
UNCLASSIFIED

2/2 034

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--ATO101877

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATIONS WERE CONDUCTED ON THE RADIOACTIVITY OF PLANKTON IN THE PACIFIC OCEAN IN THE REGION OF THE TUAMOTU ARCHIPELAGO NORTH OF THE FRENCH ATOMIC PROVING GROUND ON MURUROA ATOLL. METHODS OF COLLECTING PLANKTON SAMPLES ARE DESCRIBED; ZOOPLANKTON CONSISTED CHIEFLY OF COPEPODS, SIPHONOPHORES, AND EUPHAUSIDS. THE RADIOACTIVITY OF PLANKTON AT VARIOUS DISTANCES FROM THE MURUROA ATOLL WAS MEASURED AND RESULTS ARE TABULATED FOR PRIME141 CE, PRIME144 CE, PRIME103 RU, PRIME95 NB, AND PRIME95 ZR. THE GREATER THE DISTANCE FROM THE ATOLL, THE SMALLER WAS THE ACTIVITY OF THE SAMPLES. ANOMALIES IN A CRUSTACEAN, PLEUROMAMMA PISEKI, WERE OBSERVED; THE ANOMALY OCCURRED IN ALL SPECIMENS NEAR THE ATOLL, BUT THERE WAS A DECREASE IN INCIDENCE OF ANOMALIES WITH DISTANCE FROM THE ATOLL. FACILITY: GOSUDARSTVENNYI KOMITET PO ISPOL'ZOVANIYU ATOMNOI ENERGII SSSR, MOSCOW.

UNCLASSIFIED

USSR

UDC 629.7.036.3:533.679.2

GINEVSKIY, A. S., KOLESNIKOV, A. V., PODOL'NIY, I. N., and SMOL'YANINOVA, A. N.

"Aerodynamic Characteristics of Flat Nonstalling Diffusers"

Moscow, Promyshlennaya Aerodynamika--Sbornik (Industrial Aerodynamics--Collection of Works), Mashinostroyeniye, No 30, 1973, pp 5-25 (from Referativnyy Zhurnal--Aviatsionnyye i Raketnyye Dvigateli, No 10, 1973, Abstract No 10.34.56. Resume)

Translation: Results are presented of computer calculations of the aerodynamic characteristics of the initial and principal sectors of a series of diffusers with straight walls for a broad range of angles of aperture (from 0° to 20°) and Reynolds numbers (from 10^4 to 10^7), and a parameter characterizing the initial nonuniformity of the velocity profile within the input cross section of the diffuser. 20 figures. 8 references.

1/1

Magnesium

USSR

UDC 669.721.472(088.8)

ZUYEV, N. M., KASHKAROV, A. Z., IVANOV, A. B., KOLESNIKOV, A. V., and
GOLUBEV, A. A.

"Method of Transporting Electrolytes for the Production of Magnesium

USSR Author's certificate No. 263894, Filed 21/10/68, Published 8/06/70,
(Translated from Referativnyy Zhurnal-Metallurgiya, No. 1, 1971, Abstract
No. 1 G170 P)

Translation: The method includes utilization of a pipeline and pump.
In order to avoid expending electric power to heat the pipelines by
using the heat of the exothermic reaction occurring upon mixing of the
circulating electrolyte with $MgCl_2$, the circulating electrolyte is fed
to a mixer for enrichment with magnesium chloride through a pipe
contained in a trough, while the electrolyte enriched with magnesium
chloride is returned from the mixer to the electrolyzers through the
trough.

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Magnesium

USSR

UDC 669.721.472(088.8)

ZUYEV, N. M., IVANOV, A. B., VUKOLOV, V. V., SHARUNOVA, G. M., KASHKAROV, A. Z., DONSKIKH, P. A., KOLESNIKOV, A. V., GOLUBEV, A. A., SPRYGIN, A. I., KOLESNIKOV, V. A., and KUZ'MIN, V. A., All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry, and Berezniki Titanium-Magnesium Combine.

"Device for Conveying Liquid Electrolyte and Magnesium"

USSR Authors' Certificate No 259396, Cl. 40c, 3/02; 40c, 3/08, (C 22d), filed 21 Oct 68, published 28 Apr 70 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 G250 P)

Translation: In order to utilize the heat of the exothermic reactions taking place during the mixing of reversible electrolyte with $MgCl_2$ and to preclude the consumption of electric energy for heating the main conveyer lines, a pipeline for conveying the reversible electrolyte and metallic magnesium was installed inside a trough-shaped channel to convey a magnesium chloride-enriched electrolyte, the pipeline being connected at one end with the last electrolyzer of the flow line, and at the other with a mixer, while the trough-shaped channel is connected with the lead electrolyzer and the mixer.

1/1

USSR

UDC 534.6

BLINOVA, L. P., KOLESNIKOV, A. Ye., LANGANS, L. B.

"Acoustical Measurements"

Moscow, Izdatel'stvo standartov, 1971, p 2

Translation of Annotation: The book considers methods of measuring the parameters of acoustical processes in air, liquids, and solids and evaluates methods of measuring sonic pressure in various media as well as the effect of interference and diffraction phenomena on measurement results.

General problems of acoustical metrology are considered. Descriptions are given of modern electroacoustical sonic transmitters and receivers used in measurements. Problems in spectral, correlational, and statistical analysis, as applied to various cases of measurement practice, are discussed. Attention is given to questions connected with measurements in physiological acoustics. Methods of calibrating electroacoustical converters

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USSR

BLINOVA, L. P. et al, Izdatel'stvo standartov, 1971, p 2

for the reception of sound and vibrations are analyzed in detail. Also, methods are described for estimating the measurement error, and recommendations are made for processing measurement results.

The book is designed for workers engaged in verification operations, for metrological organizations, for control and measurement laboratories, and for specialists in acoustical measurements.

There are 24 tables, 143 illustrations, and a bibliography of 89 titles.

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USSR

UDC 534.6

BLINOVA, L. P., KOLESNIKOV, A. Ye., LANGANS, L. B.

"Acoustical Measurements"

Moscow, Izdatel'stvo standartov, 1971, pp 270-271

Translation:

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Foreword

Chapter 1. General Problems of Acoustical Metrology

- 1.1. Measurement units
- 1.2. Government standards in acoustical measurements
- 1.3. Measurement transmitters and receivers of sonic oscillations
- 1.4. Electronic equipment for exciting electro-acoustical converters

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USSR

BLINOVA, L. P., et al, Izdatel'stvo standartov, 1971, pp 270-271

- 1.5. Electronic equipment for amplifying, indicating, and recording signals.

Chapter 2. Conditions for Fundamental Acoustic Measurements

- 2.1. Operation modes in acoustical measurements. Use of harmonic, frequency-modulated, noise, and pulse signals.
- 2.2. Measuring sonic pressure in air. Dampening and reverberating chambers.
- 2.3. Measuring sonic pressure in liquids. Measuring hydroacoustical basins, devices for absorption of sound. Requirements of measurement basins. Measurements in open tanks.

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USSR

BLINOVA, L. P. et al, Izdatel'stvo standartov, 1971, pp 270-271

- 2.4. Effect of interference and diffraction phenomena on acoustical measurements.
- 2.5. Measuring the power of sonic transmitters, determining their efficiency.
- 2.6. Determining the directional characteristics and the directional factors of transmitters and receivers in various media.
- 2.7. Acoustical measurements in solids. Measurements in steel, concrete, and ice.
- 2.8. Measuring acoustical resistance.
- 2.9. Measuring vibrations: acceleration, velocity, and displacement.

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USSR

BLINOVA, L. P. et al, Izdatel'stvo standartov, 1971, pp 270-271

Chapter 3. Analysis of Measurement Signals

- 3.1. Forms of spectral analysis and types of analytic equipment.
- 3.2. Characteristics of typical analyzers.
- 3.3. Choice of optimal conditions for spectral analysis.
- 3.4. Mathematical basis of correlation analysis.
- 3.5. Description of typical correlation analyzers.
- 3.6. Correlation analysis of acoustical processes.
- 3.7. Statistical analysis.
- 3.8. Measurement of nonlinear distortion.

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USSR

BLINOVA, L. P. et al, Izdatel'stvo standartov, 1971, pp 270-271

Chapter 4. Measurements in Physiological Acoustics

- 4.1. Modern problems in audiology.
- 4.2. Psychological aspects of hearing and its quantitative characteristics.
- 4.3. Audiometers and hearing equipment.
- 4.4. "Artificial Ear" and "Artificial Mastoid" instruments.
- 4.5. Reliability of audiometers.

Chapter 5. Calibrating Measuring Acoustical Equipment

- 5.1. General calibrating problems. Absolute and relative calibration. Rules for checking measuring equipment.

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USSR

BLINOVA, L. P. et al, Izdatel'stvo standartov, 1971, pp 270-271

- 5.2. Calibrating sonic transmitters and receivers on the basis of the reciprocity principle.
- 5.3. Calibrating microphones and hydrophones with acoustical tubes.
- 5.4. Calibrating electroacoustical converters by the pistonphone method.
- 5.5. Calibrating electroacoustical converters by the electrostatic method.
- 5.6. Calibrating measuring hydrophones by the piezoelectric compensation method.
- 5.7. Calibrating hydrophones in a liquid oscillating column.
- 5.8. Calibration methods based on nonlinear effects.
- 5.9. Calibrating vibration receivers.

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USSR

BLINOVA, L. P. et al, Izdatel'stvo standartov, 1971, pp 270-271

Chapter 6. Conditions of Accurate Acoustical Measurements

- 6.1. Estimating measurement reliability.
- 6.2. Factors determining the accuracy of basic acoustical measurements.
- 6.3. Automation of measurement operations as a means of improving accuracy in measurement results.
- 6.4. Metrological processing of measurement results.

Appendix

Bibliography

7/7

USSR

UDC 669.243 + 669.337:669.052

MASH'YANOV, N. P., KOLESNIKOV, B. I., LAPIN, Yu. D., MECHEV, V. V., RYABOV, V. G.,
VASIL'YEV, M. G., and SHUSTITSKY, V. D.

"Certain Problems of the Production of Copper and Nickel From Complex Crude
Sulfides"

Moscow, Tsvetnyye Metally, No 10, Oct 70, pp 11-14

Abstract: Difficulties encountered in the production of copper and nickel from sulfide copper-nickel ores are discussed. Procedures used in the USSR for separating these metals as well as cobalt are evaluated, and the necessity for the reconstruction of present copper-nickel production combines is stressed. A plan is recommended which would involve the parallel production of copper and nickel with an exchange of semi-products between them. A schematic production chart and a table containing the compositions of basic materials used in processing sulfide copper-nickel ores are presented. The recommended plan would ensure the recovery of 98-99% Cu, 96-97% Ni, and 85-87% Co, and would increase the recovery of noble metals and platinum. The plan involves a substantial increase in the use of oxygen, not only for melting but also for converting ores and concentrates. The plan would also make it possible to utilize more complete-

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USSR

MASH'YANOV, N. P., et al, Tsvetnyye Metally, No 10, Oct 70, pp 11-14

ly the crude sulfides, and to obtain pig-iron and construction materials from the high-ferrous converter mattes.

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USSR

ARAKSLOV, A. G., KOLESNIKOV, B. P., KONONENKO, V. A., LUK'YANOV, A. N.,
MALOV, V. V., POLYAK, L. Z., ROZANOV, A. N., and TITOV, B. V.

"Device for Studying Structural Changes in Refractory Metals and Alloys"

USSR Authors' Certificate No 356536, Cl. G 01n 23/20, filed 7 Dec 70, published 23 Oct 72 (from Otkrytiya, Izobreteniya, Promyshlennyye Obratzysy, Tovarnyye Znaki, No 32, 1972, p 121)

Abstract: The device, which studies structural changes during high-temperature strain in a vacuum or other environment, contains a working chamber with a beryllium window located on the front cover, a loading mechanism, clamps for the specimen, heaters, mechanisms for measurements and the recording of readings. For purposes of studying the structure of a specimen during tests, the front cover of the working chamber has mounted on it a device for X-ray analysis with a mechanism for the vertical displacement of this device along the specimen and a mechanism for rotating it around a horizontal axis.

1/1

Public Health, Hygiene and Sanitation

USSR

UDC (063)581.524.4:631.849

KOLESNIKOV, B. P. and PIKALOVA, G. M., Ural State University, Sverdlovsk

"Vegetation and Industrial Pollution: A Scientific-Coordinating Conference
Held in Sverdlovsk 26 to 28 November 1969"

Moscow, Botanicheskiy Zhurnal, No 6, 1971, pp 903-907

Abstract: One of the most effective methods of neutralizing the injurious consequences of industrial pollution is the use of phytomelioration, i.e., the creation of artificial plant communities with plant species and forms physiologically resistant to toxic gases and waste products of industry and mining enterprises. Ural biologists have been working since the mid-1950's on the problems involved in creating "green filters" using dust- and gas-resistant plants. Ural University in cooperation with many scientific research organizations and industrial plants organized in 1962 the first of a series of biennial conferences to summarize and coordinate research in the field. At the fourth such conference held in Sverdlovsk in November 1969, 56 reports and communications were presented under two main headings: "Phytomelioration and Mining Recultivation of Industrial Tailings" and "Effect of Industrial Emissions on Plant Physiology." The proceedings were published in Referaty dokladov 1

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USSR

KOLESNIKOV, B. P. and PIKALOVA, G. M., Botanicheskiy Zhurnal, No 6, 1971,
pp 903-907

soobshcheniy IV Ural'skogo nauchno-koordinatsionnogo soveshchaniya po
probleme "Rastitel'nost' i promyshlennyye zagryazneniya" (Abstracts of Reports
and Communications Read at the Fourth Ural Scientific-Coordinating Conference
on Vegetation and Industrial Pollution), Sverdlovsk, 1969, 185 pp.

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USSR

UDC 536.46 + 662.222.2

KSANDOPULO, G. I., KOLESNIKOV, B. Ya., ZAVADSKIY, V. A., ODNOROG, D. S.,
YELOVSKAYA, T. P., Alma-Ata

"Mechanism of Inhibition of Combustion of Hydrocarbon-Air Mixtures by Finely Dispersed Particles"

Fizika Goreniya i Vzryva, No 1, Mar 71, pp 92-99.

ABSTRACT: Inhibited atmospheric propane flames were studied by the method of sampling from the flame using a quartz microtube to take samples for mass-spectrometer analysis. The reaction was quenched in the samples taken in less than 50 μ sec by the adiabatic expansion of the stream of sampled gases moving through the capillary into the sample chamber. Analysis of the concentration profiles formed in the reaction zone of the flame indicate that the first summary process is that of fractionation of the initial fuel molecules. As the concentration of propane decreases, the concentration of its fragments increases. The process of inhibition by solid particles is reduced on the one hand to accelerated formation of formaldehyde and on the other hand to inhibition of its loss by recombination of the OH radical on the surface of the solid particles. The change in the effectiveness of inhibition is in proportion to the total surface area of particles and depends on their nature. This proves the heterogeneous mechanism of inhibition of combustion.

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1/2 022 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--DETERMINATION OF THE AVERAGE LIFETIMES OF ADSORBED CESIUM IODIDE
MOLECULES ON A TUNGSTEN SURFACE -U-
AUTHOR--(03)-KOLESHNIKOV, B.YA., KOLCHIN, A.M., PANCHENKOV, G.M.
COUNTRY OF INFO--USSR
SOURCE--ZH. TEKH. FIZI1970, 40(4), 868-71
DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--TUNGSTEN, CESIUM COMPOUND, IODIDE, ADSORPTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0293

STEP NO--UR/0057/70/040/004/0868/0871

CIRC ACCESSION NO--AP0124052

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0124052

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE METHOD OF AN INTERRUPTED MOL. BEAM WAS USED IN CONJUNCTION WITH A MASS ANALYZER TO DET. THE AV. LIFETIME FOR ADSORBED, NEUTRAL CSI MOL. ON THE SURFACE OF POLYCRYST. W AT 729-856DEGREESK FOR A BEAM OF 1.9 TIMES 10 PRIME13 MOL. PER CM PRIME2 SEC. THE RESULTS ARE GIVEN BY THE FORMULA: τ (SEC) EQUALS 1 TIMES 10 PRIME NEGATIVE14 EXP(47,500-RT). THE ADSORPTION OF THE MOL. WAS 2 PHASE IN NATURE. FACILITY: MOSK. GOS. UNIV., MOSCOW, USSR.

UNCLASSIFIED

KOKESNIKOV, Ch. M.

Geological &
Mineralogical
Sci.

FOSSIL DINOZAU EGGS FROM THE Gobi DESERT

Submitted by Doctor of Geological and Mineralogical Sciences, R. A. KOKESNIKOV, Candidate of Geological and Mineralogical Sciences, V. A. KOKESNIKOV, and Candidate of Geological and Mineralogical Sciences, K. A. KOKESNIKOV. Moscow, U.S.S.R. (Received 10/10/71, pp 95-98)

The enormous territory of the Gobi Desert in Central Asia has long attracted the attention of scientists of various countries. Since 1957 the Soviet-Mongolian Geological Expedition, under the scientific leadership of A. L. Yushman, N. S. Zverev and L. N. Zhurav, has been studying that region.

A group of geologists of the Laboratory of Continental Formations of the Institute of the Geology and Geophysics of the Geo-Center of the AS USSR Academy in the Mesozoic detachment of the expedition has conducted a systematic investigation of the continental sedimentary formations and fossil fauna in the southern regions of Mongolia in order to clarify the evolution of fresh-water organisms and reconstruct the paleogeographical conditions of their distribution. In the process of detailed study of profiles of the Mesozoic continental deposits of Mongolia, besides relatively very rich collections of fresh-water vegetation (pollens, Coniferales, Ginkgo, etc.), and also of the lower part of the profile of the Mesozoic, new and very valuable findings were made of remains of freshwater vertebrates, including fishes, crocodiles, turtles, etc., and, finally, very rare collections were made of dinosaur eggs. The main part of the assembled collection of vertebrates was deposited in the Museum of the Paleontological Institute of the AS USSR and the National Museum of the USSR.

JPRS 5472
J6 Sep 71
UNCL 501501

USSR

UDC 621.396:6-181.5

KOLESNIKOV, D. P., ORESHKOV, YU. YE., PERLICH, YU. L., BUTUZOV, V. S.

"Electron Pulse Adjustment of Thin-Film Resistors"

Elektron. prom-st'. Nauch.-tekhn. sb. (Electronics Industry. Scientific and Technical Collection), 1971, No 4, pp74-75 (from RZh-Radiotekhnika, No 5, May 72, Abstract No 5V273)

Translation: An adjustment method based on eliminating unstable lattice defects arising on condensation of the vapors of the initial material by controlled annealing with transmission of short current pulses through the resistor is described. The results of studying the magnitude of the change in resistance as a function of the amplitude, duration and the number of pulses are presented. There are 3 illustrations and a 2-entry bibliography.

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- 51 -

USSR

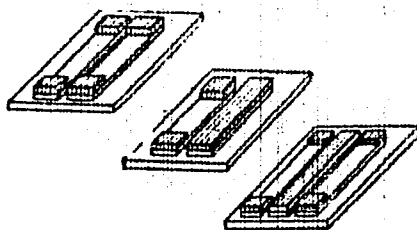
UDC: 621.316.86:621.319.42

ZAUMYSLOV, Yu. V., KOLESNIKOV, D. P., ZABOLOTNOV, V. F.

"A Thin-Film RC-Structure With Distributed Parameters"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratztsy, Tovarnyye Znaki,
No 30, 1970, Soviet Patent No 282486, Class 21, filed 10 Aug 68, p 73

Abstract: This Author's Certificate introduces a thin-film RC-structure with distributed parameters. The unit is made in the form of a capacitor whose plates are the resistance elements of the RC circuit. As a distinguishing feature of the patent, the design and manufacturing technology are simplified by making the resistance elements with their electrical leads in the form of two parallel strips deposited in the plane of the substrate.



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Instruments and Equipment

USSR

KOLESNIKOV, G., Doctor of Medical Sciences, Professor

"Looking Into the Future. Engineer of the Medical Service"

Kiev, Pravda Ukrainy, 1 Jan 71, p 2

Abstract: Technology is currently being widely utilized in practical medicine, particularly in the field of diagnostics. The electrocardiogram, electroencephalogram, and electromyogram, for instance, are graphic records of the functions or malfunctions of tissues and organs based on bioelectric currents of the organism. In anticipating future technological developments in connection with medicine, it will be possible to utilize technology not only for diagnostic purposes but also for therapeutic purposes through the reversal of bioelectric currents which signal a malfunction. In this case the physician will not only need to have a knowledge of practical medicine but will also have to be skilled in some phases of technology. A hypothetical model of an apparatus for this purpose has already been devised by the author, in cooperation with engineers. The apparatus is small and portable, and can be plugged into any diagnostic-therapeutic system. It could be useful in surgery in the case of organ failure and in organ and tissue

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USSR

KOLESNIKOV, G., Pravda Ukrainy, 1 Jan 71, p 2

transplantation. By recording electrical activity in the organ or tissue in question, it will also serve as a source of information concerning the functional activity of the organ or tissue. Furthermore, its application need not be limited to medicine, since it could also be useful in certain nonmedical areas such as the selection of suitable personnel for such important occupations as dispatchers in power stations, test pilots, workers at high altitudes, etc.

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USSR

UDC: 547.723'26.118.07

KOLESNIKOV G. I., BURTSEV, V. A., Krasnodar Polytechnical Institute

"A Method of Synthesizing O,O-Dialkyl (4,5-Bisfurfurylhydroxy-6-Furyl) fulvenisopropylphosphonates"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztzy, Tovarnyye Znaki, No 13, May 72, Authors' Certificate No 335252, Division C, filed 16 Feb 70, published 11 Apr 72, pp 88-89

Translation: This author's certificate introduces: 1. A method of synthesizing O,O-dialkyl (4,5-bisfurfurylhydroxy-6-furyl)fulvenisopropylphosphonates distinguished by the fact that O,O-dialkyl cyclopentadienylisopropylphosphonate is reacted with furfural in the presence of a basic catalyst with subsequent isolation of the goal product by conventional methods. 2. A modification of this method distinguished by the fact that the O,O-dialkyl cyclopentadienylisopropylphosphonate and furfural are taken in a molar ratio of 1:3.

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- 34 -

USSR

UDC 547.241:547.724.1

KOLESNIKOV, G. I., BURTSEV, V. A., and STRIZHOV, N. K., Krasnodarsk Poly-
~~technical Institute~~

"Some Rules for the Condensation of 0,0-Dialkyl Cyclopentadienylalkyl-
phosphonates With Furfurol"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 2, Feb 71, pp 305-309

Abstract: Condensation of 0,0-dialkyl cyclopentadienylalkylphosphonates with furfurol at temperatures below 25° yields mainly bis(hydroxy-2-furfuryl) derivatives. The yield of mono-(hydroxy-2-furfuryl) derivatives is either very small or nonexistent. It was determined that a 10% ethanol solution of KOH or metal alkoxides is the optimum concentration of the catalyst, while the ratio of the phosphonate to furfurol should be around 1:3. Relative yields of individual compounds formed would indicate that the dehydration rates of hydroxyfurfuryl derivatives are lower than the rate of aldol condensation and that the dehydration rate drops with addition of more furfurol. The condensation follows first kinetics in the temperature range studied.

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1/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--RESINS BASED ON CYCLOPENTADIENE -U-
AUTHOR--(02)-KOLESNIKOV, G.I., KAPUSTYANSKAYA, ZH.V. K
COUNTRY OF INFO--USSR
SOURCE--U.S.S.R. 267,068
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--01APR 70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CONDENSATION REACTION, CHEMICAL PATENT, FURAN, CATALYST,
CYCLOPENTANE, DIENE RESIN
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3004/1806 STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0132072
UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AA0132072
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESINS BASED ON CYCLOPENTADIENE
ARE PREPD. BY CONDENSING THE ALTER WITH 2 (2 ETHYL 3 OXOPROPYL)FURAN
(1) IN THE PRESENCE OF ALK. CATALYSTS. FACILITY: KRASNODAR
POLYTECHNIC INSTITUTE.

UNCLASSIFIED

USSR

UDC 541.64:536.4

FEDOTOVA, O. YA., GORONOV, V. I., PARESHVILI, O. I., KARPENKOV, G. S.,
and KOLESNIKOV, G. S. (deceased), Moscow Chemical Technological Institute
Imeni D. I. Mendeleev

"Study of the Thermal Degradation and Thermal Oxidation of Phosphorus Con-
taining Polyimides"

Moscow, Vysokomolekularnyye Soyedineniya, Vol 14, No 6, Jun 72, pp 1256-1266

Abstract: A study has been carried out on thermal and thermal-oxidative degradation of polyimides using the model reaction of the anhydride of di-(3,4-dicarboxyphenyl)-phenylphosphine oxide with various aromatic diamines. It has been shown that the thermal stability of phosphorus containing polyimides depends on the thermal stability of the imide cycle, whose stability in turn depends on the structure of the diamine. The low molecular weight products of thermal degradation consist of hydrogen, CO, CO₂, benzene, methane, ammonia, water, and traces of ethylene. Using EPR method, it was shown that in the solid products of thermal and thermal oxidation degradation the rate of the accumulation of paramagnetic centers depends on the structure of the diamine radical. Increasing concentrations of paramagnetic

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JSR

FEDOTOVA, O. YA., et al, Vysokomolekularnyye Soyedineniya, Vol 14, No 6,
Jun 72, pp 1256-1266

centers in the polymer lead to higher thermal degradations. Resistance to thermal oxidative degradation depends on the structure of diamine used in the synthesis of polyimides: introduction of compounds with polyconjugated systems results in a sharp increase in the oxidation rate of the polymer.

2/2

- 72 -

USSR.

UDC 546.185+547.245

KIREYEV, V. V., KOLESNIKOV, G. S. (deceased), RAYGORODSKIY, I. M., and OKULEVICH, P. O., Moscow Institute of Chemical Technology imeni D. I. Mendeleev

"Reaction of Alkoxyphosphazenes With Chloromethylorganosilanes"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 4, Apr 71, pp 792-797

Abstract: The reaction course was measured by the amount of the chloride evolved butyl. The following starting materials were used: hexabutoxycyclotriphosphazotriene, triphenoxytributoxycyclotriphosphazotriene, chloromethyltributoxysilane, chloromethylmethyldibutoxysilane, chloromethylmethylphenylsilane, and chloromethyltributylsilane. The products were shown to contain the $P-O-CH_2Si^{\leftarrow}$ group. It was proposed that the reaction takes place via ionization of the P-O-R bond in alkoxyphosphazene followed by a nucleophilic attack of the phosphazonium ion on chloromethyltriorganosilane.

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USSR

UDC 547.26'118

KIREYEV, V. V., KOLESNIKOV, G. S., and TITOV, S. S., Moscow Chemical-Technical Institute imeni D. I. Mendeleev

"The Reaction of Tetraalkyl Esters of Imidodiphosphoric Acid with Triorganohalosilanes"

Leningrad, Zhurnal Obshchey Khimii, Vol XL, No 12, Dec 70, pp 2634-2642

Abstract: It is shown that the reaction of tetraalkyl esters of imidodiphosphoric acid with chlorosilanes leads to the formation of products with P-O-Si bonds. The overall reaction follows first order kinetics -- first order with respect to the ester, zero order with respect to the chlorosilane.

On the basis of study of the infrared, ultraviolet and nuclear magnetic resonance spectra, it was established that the initial substances form a complex.

The most probable mechanism is suggested for the reaction which proceeds with ionization of the bond POR.

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USSR

UDC 547.26'118

KIREYEV, V. V., KOLESNIKOV, G. S. (DECEASED), TITOV, S. S., Moscow
Institute of Chemical Technology imeni D. I. Mendeleev, Moscow,
Ministry of Higher and Secondary Specialized Education RSFSR

"Esters of Imidodiphosphoric Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 9, Sep 70,
pp 2015-2019

Abstract: Reacting trichlorophosphazodichlorophosphonyl with alcohols and alkoxides gave a series of novel esters of imidodiphosphoric acid. To freshly prepared sodium butoxide in anhydrous dioxane, trichlorophosphazodichlorophosphonyl (I) in benzene was added with stirring. The precipitated NaCl was filtered off, the solvents were evaporated, and the residue was extracted with petroleum ether, washed, and dried, and the solvent was evaporated to give tributoxyphosphazodibutoxyphosphonyl, n_D^{20} 1.4460, d_4^{20} 1.0611. To obtain the tetrabutyl ester of imidodiphosphonic acid, (I) in benzene was added to a mixture of absolute butyl alcohol and triethylamine in petroleum ether with stirring at a rate permitting the 1/2

USSR

KIREYEV, V. V., et al, Zhurnal Obshchey Khimii, Vol 40, No 9,
Sep 70, pp 2015-2019

temperature to be kept at +5°. Then the mixture was kept at room temperature for 2 days, the precipitated triethylamine salt was filtered off, and the solvent distilled at a temperature below 80°. The residue was dissolved in petroleum ether and chromatographed over neutral alumina.

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USSR

UDEC 678.675.01:53

KOLESNIKOV, G. S., (DECEASED), FEDOTOVA, O. YA., and PARESISHVILI, G. I.

"Polyimides Based on Di-(3,4-dicarboxyphenyl)-Phenylphosphine Oxide Dianhydride"

Moscow, Plasticheskiye Massy, No 12, Dec 70, pp 20-23

Abstract: The authors study the physical and mechanical properties of homo- and mixed phosphorus-containing polyimides of various chemical structure selected in such a way that the effect which the phosphorus-containing group has on the properties of the polyimides could be investigated. It was found that all polyimides with phosphorus-containing groups in the chain have a definite softening point temperature in the region of 270-330°C depending on the structure of the amine component, and in the case of mixed polyimides, on the content of the phosphorus-containing dianhydride as well. It was also found that considerable reversible deformations are typical of the materials studied, which indicates that the softening process in polyimides corresponds to transition to the highly elastic state. However, further investigation shows that partial cross-linking may take place in the highly elastic state at high temperatures. In

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USSR

KOLESNIKOV, G. S., (DECEASED), et al., Plasticheskiye Massy, No 12, Dec 70, pp20-23

contrast to most polyimides, some of the materials synthesized in this research are readily soluble in organic solvents. Solubility drops with a reduction of phosphorus content in the chain. The tensile strength of films based on these polyimides may be as high as 800-1200 kg/cm² depending on polymer structure. The dielectric constant of the materials studied varies from 3.3 to 3.9 and is not strongly dependent on temperature. The resistivity at room temperature is considerably greater than $10^{15} \Omega \cdot \text{cm}$, and the loss tangent is 0.002-0.16, showing almost no change with the structure of the polymer chain. The electrical strength of the polymers varies from 62 to 82 kW/mm. The polymers are fire-resistant and quench rapidly after removal from flame. In view of their valuable properties, these polymers should be put to practical use.

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USSR

UDC 66.095.26:678.86

KOLESNIKOV, G. S. (DECEASED), SAFARALIYEVA, I. G., RODIONOVA, YE. F.,
and LUK'YANOVA, G. M., Institute of Organic Elemental Compounds, Moscow,
Academy of Sciences USSR

"Kinetics of Polymerization of Vinylphosphonic Esters"

Moscow, Vysokomolekulyarnyye Soyedineniya, Vol 12, No 5, May 70, pp
1051-1061

Abstract: A kinetic study was made of the block polymerization of a series of vinylphosphonic esters in the presence of azobisisobutyronitrile to ascertain the influence of the value and structure of the alkyl radical on the course of the polymerization process. Vinylphosphonic esters were synthesized and their properties determined, and the specific weights of the monomers and polymers of the vinylphosphonic esters were determined. The polymerization of dimethyl and diisopropyl vinylphosphonate with various initiator concentrations was staged for purposes of ascertaining the role of chain transfer through the monomer in chain termination. It was found that in the early

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USSR

KOLESNIKOV, G. S. (DECEASED) et al., Vysokomolekulyarnyye Soyedineniya, Vol 12, No 5, May 70, pp 1051-1061

stage of polymerization chain transfer through the alkyl groups of the monomer is the principal process resulting in the termination of macromolecule growth. In the later polymerization stages there is chain transfer through the alkyl groups of the resultant polymers.

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1/2 024 UNCLASSIFIED PROCESSING DATE--300CT7C
TITLE--SYNTHESIS OF POLYCARBONATES MODIFIED WITH SILICON -U-

AUTHOR--(05)--SMIRNOVA, G.V., SIDNEV, A.I., BURAKOVA, T.P., KOROVINA, YE.V.,
KOLESHNIKOV, G.S.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN. SER. A 1970. 12(4). 917-21

DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--HYDROXYL RADICAL, BENZENE DERIVATIVE, PROPANE, PHOSGENE,
ORGANOSILICON COMPOUND, POLYCARBONATE RESIN, POLYSILOXANE, ELASTICITY,
THERMAL STABILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAKE--2000/0665

STEP NO--UR/0459/70/012/004/0917/0921

CIRC ACCESSION NO--AP0124337

UNCLASSIFIED

. 2/2 024

UNCLASSIFIED

PROCESSING DATE--30OCT7

CIR, ACCESSION NO--AP0124337

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF
2,2,BIS(4, HYDROXYPHENYL)PROPANE WITH COCL SUB2, ME SUB2 SICL SUB2, OR
THEIR MIXTS. IN PYRIDINE, CH SUB2 CL SUB2 GAVE, RESP., A CRYST.
POLYCARBONATE (I), POLYSILOXANES, OR AMORPHOUS MODIFIED I (II). THE
INCREASE OF SI CONTENT IN II INCREASED ITS ELASTICITY BUT DECREASED THE
MELT FLOW TEMP. AND THERMAL STABILITY. FACILITY: MOSK. KHIM.
TEKHNOL. INST. IM. MENDELEEVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--THERMAL AND OXIDATIVE THERMAL DEGRADATION OF AROMATIC AND AROMATIC
ALIPHATIC POLYAMIDES AND POLYUREAS -U-
AUTHOR-(05)-FEDOTOVA, O.YA., CHIBISOVA, YE.I., KOLESNIKOV, G.S., GOROKHOV,
V.I., KOVARSKAYA, B.M.
COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(1) 26-30

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THERMAL DEGRADATION, OXIDATIVE DEGRADATION, POLYAMIDE
COMPOUND, POLYUREA, DIAMINE, ORGANIC ISOCYANATE, COPOLYMERIZATION,
POLYMER CROSSLINKING, POLYCONDENSATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1987/1195

STEP NO--UR/0459/70/012/001/0026/0030

CIRC ACCESSION NO--AP0104561

UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104561

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. POLYAMIDES (PREPD. BY INTERFACIAL POLYCONDENSATION) AND POLYUREAS (PREPD. BY COPOLYMN. OF DIAMINES WITH DIISOCYANATES SUCH AS HEXAMETHYLENE DIISOCYANATE), E.G.,
 POLY(DITOLYL,METHANEFUMARAMIDE) (I),
 POLY(DITOLYL-N,N'-DIETHYLFUMARAMIDE) (II),
 POLY(DITOLYLMETHANE-N,N'-DIETHYLADIPAMIDE) (III),
 POLY(DITOLYLMETHANEHEXAMETHYLENEUREA) (IV) AND
 POLY(DITOLYLMETHANEFUMARAMIDE) (I), POLY(DITOLYL-N,N'-DIETHYLFUMARAMIDE)
 TOLYLMETHANE MOIETY IS DERIVED FROM 4,4'-METHYLENEDI-O-TOLUIDINE OR FROM
 4,4'-METHYLENEBIS(N-ETHYL-O-TOLUIDINE)) WERE DEGRADED AT 200-320DEGREES,
 I, II, AND III WERE MORE STABLE THAN IV OR V. I AND II EXHIBITED HIGHER
 THERMAL STABILITY THAN III. THE OXIDN. OF POLYAMIDES AND POLYUREAS
 (BASED ON A PRIMARY DIAMINE) WAS ACCOMPANIED BY CROSSLINKING. CO, CO
 SUB2, H SUB2 O, AND ACH (IDENTIFIED BY POLAROGRAPHY AND CHROMATOG.)
 RESULTED FROM THE OXIDATIVE THERMAL DEGRADATION OF THE CITED POLYMERS.

UNCLASSIFIED

Acc. Nr:

A0041735

Abstracting Service:
CHEMICAL ABST.

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UR0459

4-70

79591m Degradation of aromatic-aliphatic polyamides.

Kolesnikov, G. S.; Fedorova, O. Ya.; Tretyov, V. V.; Gornthoy, V. I. (Mosk. Khim.-Tekhnol. Inst. im. Mendeleeva, Moscow, USSR). *Vysokomol. Soedin., Ser. A* 1970, 12(1), 177-81 (Russ).

The thermal and oxidative thermal degradation of polyamides derived from $H_2N(CH_2)_{12}NH_2$ and aromatic dicarboxylic acid chlorides such as terephthaloyl chloride and 4,4'-bis(chloroformyl)biphenyl were studied by following the gas evolution and loss in wt. during heating. Paramagnetic centers were detected in the polyamides $>340^\circ$ and were apparently due to the formation of conjugated structures arising from secondary reactions. An induction period of 10-40 min was obsd. for the formation of the paramagnetic centers. The centers apparently catalyzed the thermal degradation since degradation was more rapid in resins contg. greater concns. of such centers. A thermal degradation mechanism is discussed.

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F B

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19751612

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Acc. Nr:

AP0052524

Abstracting Service:

CHEMICAL ABST. 5-7c

Ref. Code:

4R0459

101168c Synthesis and studies of aromatic-aliphatic polyamides containing ether bonds in the monomer unit. Kolesnikov, G. S.; Fedotova, O. Ya.; Donetskii, I. A.; Fokina, L. T. (Khim. Tekhnol. Inst. im. Mendeleeva, Moscow, USSR). Vysokomol. Soedin., Ser. A 1970, 12(1), 106-19 (Russ). The condensation of $\text{HO}_2\text{C}(\text{CH}_2)_x\text{ORO}(\text{CH}_2)_y\text{CO}_2\text{H}$ with $\text{H}_2\text{N}(\text{CH}_2)_z\text{NH}_2$ in 98% iso-PrOH or dioxane gave $-\text{O}_2\text{C}(\text{CH}_2)_x\text{ORO}(\text{CH}_2)_y\text{CO}_2^--\text{H}_2\text{N}(\text{CH}_2)_z\text{NH}_3^+$ (I). These salts were neutral in alc. solns. and were easily hydrolyzed. Heating I at 130-320° during 3-5 hr in vacuo or Ar gave 69-97% $[\text{OC}(\text{CH}_2)_x\text{ORO}(\text{CH}_2)_y\text{CONH}(\text{CH}_2)_z\text{NH}]_n$ (II) (R, x, y given): 1,4- C_6H_4 , 6, 2; 1,4- C_6H_4 , 6, 6; 1,4- C_6H_4 , 6, 10; 1,3- C_6H_4 , 6, 10; 1,3- C_6H_4 , 6, 6; 1,3- C_6H_4 , 6, 10; 1,3- C_6H_4 , 6, 2; 4,4'- $\text{C}_6\text{H}_4\text{C}_6\text{H}_4$, 6, 2; 4,4'- $\text{C}_6\text{H}_4\text{C}_6\text{H}_4$, 6, 6; 4,4'- $\text{C}_6\text{H}_4\text{C}_6\text{H}_4$, 6, 10; 4,4'-isopropylidenediphenylene (III), 4, 2; III, 6, 2; III, 8, 2; III, 10, 2; III, 4, 6; III, 6, 6; III, 8, 6; III, 10, 6; III, 6, 10. The optimum prepn. conditions of I and II were established. All II had high surface hardness, formed elastic fibers from their melts, were insol. in common org. solvents, and stable $\leq 300^\circ$ in the air. CPJR

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1/2 034 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--THERMAL CYCLIZATION OF PHOSPHORUS CONTAINING HOMO AND MIXED
AROMATIC POLYAMIC ACIDS STUDIED FROM INFRARED ABSORPTION SPECTRA -U-
AUTHOR--(04)-KULESNIKOV, G.S., FEDOTOVA, O.YA., PARESISHVILI, O.I.,
BELEVSKIY, S.F.
COUNTRY OF INFO--USSR

SOURCE--VVSOKOMOL SOEDIN., SER. A 1970, 12(2), 317-22

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SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CYCLIZATION, ORGANIC PHOSPHORUS COMPOUND, IR SPECTRUM,
PYROMELLITIC ACID, THERMAL EFFECT, ACTIVATION ENERGY, IMIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1995/1223

STEP NO--UR/0459/70/012/002/0317/0322

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PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0116685

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETICS OF THERMAL CYCLIZATION OF P CONTG. AROMATIC POLYAMIC ACIDS (G. S. KOLESNIKOV ET AL., 1968) INTO THE CORRESPONDING POLYIMIDES AND THE CYCLIZATION OF POLY(PYROMELLITAMIC ACID) INTO POLY(PYROMELLITIMIDE) WERE STUDIED BY SPECTROSCOPY AT 1390-780 CM PRIME NEGATIVE. THE POLYAMIC ACIDS CYCLIZED SLOWLY AT 110-20DEGREES, BUT RAPIDLY AT HIGH TEMPS. IMIDIZATION FOLLOWED 1ST ORDER KINETICS, CHARACTERIZED BY A RATE CONST. WHICH WAS UNCHANGED UP TO A CERTAIN DEGREE OF CYCLIZATION BUT WHICH RAPIDLY DECREASED THEREAFTER WITH INCREASING TEMP. A DECREASE IN THE C-C-N ANGLE CAUSED AN INCREASE IN THE APPARENT ACTIVATION ENERGY. FACILITY: MOSK. KHIM.-TEKHNOL. INST. IM. MENDELEEVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 032 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--SYNTHESIS AND STUDIES OF POLYMERS WITH PHENANTHRIDINE AND
DIAZAPYRENE RINGS -U-
AUTHOR-(03)-KOLESHNIKOV, G.S., FEDOTOVA, O.YA., MATVELASHVILI, G.S.
COUNTRY OF INFO--USSR
SOURCE--VYSOKOMOL. SOEDIN. SER A 1970, 12(3), 536-47
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--HETEROCYCLIC NITROGEN COMPOUND, POLYNUCLEAR HYDROCARBON,
POLYAMIDE COMPOUND, POLYMER, CHLORINATED ORGANIC COMPOUND, THERMAL
STABILITY, THERMAL DEGRADATION, PLASTIC MECHANICAL PROPERTY, POLYMER
STRUCTURE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/1201 STEP NO--UR/0459/70/012/003/0536/0547
CIRC ACCESSION NO--AP0116666
UNCLASSIFIED